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5.23.03

MS APPEAL BRIEF - PATENTS
PATENT
3430-0154P

IN THE U.S. PATENT AND TRADEMARK OFFICE

In Re Application of

Before the Board of Appeals

Sung-Kon KIM

Appeal No.

Appl. No.: 09/741,045

Group: 2871

Filed: December 21, 2000

Examiner: T.V. DUONG

Conf. No.: 5517

For: BACK LIGHT DEVICE AND LIQUID CRYSTAL DISPLAY HAVING
THE SAME

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BRIEF ON APPEAL ON BEHALF OF APPELLANTS FILED UNDER
PROVISIONS OF 37 C.F.R. § 1.192

MS APPEAL BRIEF- PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

May 19, 2003

Dear Sir:

This is an Appeal from the Final Rejection of November 19, 2002 of claims
1-10 in the above-identified application.

I. REAL PARTY IN INTEREST

As evidenced by the Assignment filed June 13, 2001, and recorded at Reel
011894, Frames 0227-0229 the Real Party In Interest in connection with the
present application is the Assignee of record, LG. PHILIPS LCD CO. LTD.

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II. RELATED APPEALS AND INTERFERENCES

There are no pending Appeals or Interferences related to the present application known to Appellant or Appellant's Legal Representatives.

III. STATUS OF CLAIMS

Claims 1-10 are pending in the application. Claims 1-10 stand rejected.

IV. STATUS OF AMENDMENTS

An Amendment Under 37 C.F.R. § 1.111 was filed on September 9, 2002. A Reply Under 37 C.F.R. § 1.116 was filed on February 19, 2003, which was entered by the Advisory Action mailed March 10, 2003. Accordingly, all Amendments filed in the present application have been entered.

V. SUMMARY OF INVENTION

The present invention pertains to a display having a novel backlight configuration that prevents a bright line, thereby improving brightness (page 8, lines 18-20). The invention has at least one lamp and a light guide plate (page 6, lines 11-13), which can have a dot pattern (page 6, line 16), that guides light emitted from the lamp. A diffusing sheet diffuses light emitted from the light guide plate, and at least one prism sheet located on the diffusing sheet concentrates light (page 6, line 18). A protecting sheet is located on the prism

sheet (page 6, line 19). A reflector is located under the light guide plate so as to reflect light directing downward the light guide plate (page 6, lines 19-20).

The invention utilizes a printing portion made of colorless ink containing a light scattering agent (page 6, lines 21-22), which can be found on an edge portion of the diffusing sheet adjacent to the lamp (page 7, lines 14-15), an edge portion of the protecting sheet adjacent to the lamp (page 8, lines 9-10), or on the reflector (page 6, line 20). This novel configuration prevents a bright line from forming and thus improves brightness (Page 8, lines 18-20).

VI. ISSUES

The issue presented for review is whether Mashino (USP 5,886,759) in view of Taniguchi (USP 6,099,134) suggests all of the elements set forth in claims 1-10 to properly support a rejection under 35 U.S.C. § 103. This issue is divided into Groups I-X, which are separately argued below.

VII. GROUPING OF CLAIMS

Appellant submits that claims 1-10 do not stand or fall together. Instead, Appellant respectfully wishes to group claims 1-10 as follows:

Group I: claim 1;

Group II: claim 2;

Group III: claim 5;

Group IV: claim 6;
Group V: claim 9;
Group VI: claim 3;
Group VII: claim 4;
Group VIII claim 7;
Group IX claim 8; and
Group X claim 10.

VIII. ARGUMENT

A. Group I, Independent Claim 1

The combination of Mashino and Taniguchi fails to suggest all of the elements set forth in claim 1 to properly support a rejection under 35 U.S.C. § 103.

A.1. The Present Invention and its Advantages

The inventor has produced an improved display, particularly a liquid crystal display, which has a novel backlight configuration that prevents a bright line without a decrease in brightness. The invention has at least one lamp and a light guide plate (which can have a dot pattern) for guiding light emitted from the lamp. A diffusing sheet diffuses light emitted from the light guide plate, and at least one prism sheet located on the diffusing sheet

concentrates light. A protecting sheet is located on the prism sheet. A reflector is located under the light guide plate so as to reflect light directing downward the light guide plate.

An important aspect of the invention is the utilization of a printing portion made of colorless ink containing a light scattering agent, which can be found on an edge portion of the diffusing sheet adjacent to the lamp, an edge portion of the protecting sheet adjacent to the lamp, or on the reflector. Although not explicitly set forth in the disclosure, one of ordinary skill would realize that the light scattering agent would be organic or inorganic fine particles such as glass beads, silica, talc, titanium dioxide, barium sulfate, aluminum oxide, calcium carbonate, quartz, etc. This novel construction prevents a bright line from forming and additionally has no decrease of brightness.

A.2. Mashino and Taniguchi

Mashino pertains to a liquid crystal display device with a back light. Figures 1-5 of Mashino show a back light system for a liquid crystal display that can be compared to the invention shown in Figures 5-7 of the application. Notably, section 1 shown in Figures 1A and 1B of Mashino is "printed with gray-colored dots, for example, is provided as a hue layer on the undersurface of the end portion 70 of the lamp reflector sheet 66 mounted on the surface of the light

guide 37 adjacent to the light receiving face 65.” (emphasis added) See Mashino at column 5, lines 58-63.

Further, Mashino at column 4, lines 34-37 (relied upon by the Examiner) states “67 denotes a pattern of a plurality of light diffusion dots printed with white ink on the underside of the light guide 37.” (emphasis added) Also, in summarizing the invention, Mashino states “Further, one of gray, dark brown, purple, green and black colors is used for coloring purposes. . . . Further, the color printing to be conducted is in the form of dots.” See Mashino at column 2, lines 57-60.

Mashino fails to disclose or suggest “a printing portion made of colorless ink containing a light scattering agent,” as is set forth in independent claim 1 of the invention. That is, Mashino’s technology depends upon colored dots, and using a colorless ink (such as in the invention) changes the principle of operation of Mashino. If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the reference are not sufficient to render the claims *prima facie* obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Further, the Examiner admits to the failures of Mashino at page 3, lines 11-14 of the Office Action mailed November 19, 2002, stating: “Mashino discloses a LCD device having a backlight device that is basically the same as

that recited in claims 1-10 except that the printing portion is made of mixing colors instead of colorless ink containing a light scattering agent.”

The Examiner then alleges that Taniguchi teaches a light scattering agent, stating: “Taniguchi discloses a LCD device comprising a liquid crystal cell array and a back light device including a light guide plate and an optical member which is disposed on the top or bottom surface of the light guide plate and provided with convex-shaped or concave-shaped dots capable of scattering light rays so that luminance of the back light device is uniform (col.3, lines 1-9).” *See* Office Action mailed November 19, 2002 at page 3, lines 14-18.

However, the Examiner appears to be confused by the difference between the light guide plate 2 and the light scattering layer 3. *See* Office Action of May 8, 2002 at page 3, line 13 (“a light scattering layer 2”) and Taniguchi at column 24, lines 16-17 (“2 denotes a light guide plate”). Further, Taniguchi at columns 11-15 has a detailed discussion of how the dots’ geometry and arrangement avoid various interference phenomena.

That is, the dots of Taniguchi are formed to make light uniform. In contrast, the printing portion of the present invention is formed to prevent a bright line without a decrease in brightness. “In order to rely on a reference for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor, or if not, then be reasonably pertinent to the particular problem with the which the invention was concerned.” *In re Oetiker*, 977 F.2d

1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992)

As a result, the technology of Taniguchi is not directed at light scattering, but is rather directed at using the dots for reflection or refraction. In contrast, the present invention eliminates bright line phenomena by using colorless ink containing a light scattering material. That is, Taniguchi (similar to Mashino) also fails to disclose or suggest colorless ink containing a light scattering material.

However, the Examiner tries to equate the dot patterns of Taniguchi (see, e.g., FIG. 1B of Taniguchi) with the inventive light scattering agent. In the Advisory Action mailed March 10, 2003, the Examiner alleges

Taniguchi's reference is employed for teaching an optical member with a plurality of small convex dots capable of scattering light rays and made of transparent plastic (colorless) material so as to obtain a uniform luminance from the backlight. It would have been obvious to one having ordinary skill in the art to modify the backlight of Mashino with the teaching of Taniguchi by forming a printing portion made of colorless ink (instead of whit ink) containing a light scattering agent so as to obtain a uniform luminance distribution for the display.

That is the examiner erroneously insists on asserting that a dot pattern can be equated with a light scattering agent distributed in a colorless ink. However, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be

considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1384, 165 USPQ 494, 496 (CCPA 1970).

That is, Neither Mashino nor Taniguchi disclose or suggest a printing portion made of colorless ink containing a light scattering agent. It is clear that the Examiner mistakes the dot pattern of Taniguchi for the light scattering agent of the invention. At page 3, lines 14-18 of the Office Action of November 19, 2002, the Examiner states:

Taniguchi discloses a LCD device comprising a liquid crystal cell array and a back light device including a light guide plate and an optical member which is disposed on the top or bottom surface of the light guide plate and **provided with convex-shaped dots capable of scattering light rays** so that luminance of the back light device is uniform. (Emphasis added)

The Examiner then asserts that it would be obvious "to modify the back light device of Mashino with the teaching of Taniguchi by forming a printing portion made of colorless ink containing a light scattering agent. . ." Office Action of November 19, 2002 at page 4, lines 4-6.

In comparison, Claim 1 of the invention recites "colorless ink containing a light scattering agent." (Emphasis added) One having ordinary skill would realize that the invention utilizes organic or inorganic fine particles as the light scattering agent. The inorganic fine particles can typically be glass beads, silica, talc, titanium oxide, barium sulfate, aluminum oxide, aluminum

hydroxide, calcium carbonate, quartz, etc. An organic material usable as a light scattering agent can be cross-linked polymer fine particles.

In contrast, if a dot pattern of Taniguchi is used to diffuse light, how can a dot pattern be "contained" in the ink from which it is formed?

Further, Taniguchi fails to teach or suggest a diffusing sheet, a protecting sheet, and a reflector including colorless ink containing a light scattering agent.

However, as noted above, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1384, 165 USPQ 494, 496 (CCPA 1970).

Also, to establish a *prima facie* case of obviousness, it is necessary for the Examiner to present evidence, preferably in the form of some teaching, suggestion, incentive, or inference in the implied prior art, or in the form of generally available knowledge, that one having ordinary skill in the art would have been lead to use the relevant teachings of the implied references in the proposed manner asserted by the Examiner to arrive at the invention. See *Ex parte Levengood*, 28 USPQ2d 1300 (BPAI 1993). Because the Examiner bears the initial burden of presenting a *prima facie* case of obviousness, if this burden

is not met, then the burden of coming forth with evidence or argument does not shift to the Applicant. In re Rijckaert, 9 F.2d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993). Likewise, where an Examiner fails to establish a proper *prima facie* case, the rejection is improper, and should be overturned. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Further, the rigorous burden placed upon the Examiner for establishing *prima facie* obviousness has recently been emphasized by the United States Court of Appeals for the Federal Circuit in In re Sang Su Lee, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). In Sang Su Lee, the court states:

As applied to the determination of patentability *vel non* when the issue is obviousness, "it is fundamental that rejections under 35 U.S.C. §103 must be based on evidence comprehended by the language of that section." In re Grasselli, 713 F.2d 731, 739, 218 USPQ 769, 775 (Fed. Cir. 1983). The essential factual evidence on the issue of obviousness is set forth in Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966) and extensive ensuing precedent. The patent examination process centers on prior art and the analysis thereof. When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. *See, e.g., McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001) ("the central question is whether there is reason to combine [the] references," a question of fact drawing on the Graham factors).

"The factual inquiry whether to combine references must be thorough and searching." *Id.* It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with. *See, e.g., Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120,

1124-25, 56 USPQ2d 1456, 1459 (Fed. Cir. 2000) ("a showing of a suggestion, teaching, or motivation to combine the prior art references is an 'essential component of an obviousness holding'") (quoting C.R. Bard, Inc. v. M3 Systems, Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998)); In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."); In re Dance, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) ("teachings of references can be combined only if there is some suggestion or incentive to do so.") (emphasis in original) (quoting ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)).

The need for specificity pervades this authority. See, e.g., In re Kotzab, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) ("particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed"); In re Rouffet, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) ("even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious."); In re Eritch, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (the examiner can satisfy the burden of showing obviousness of the combination "only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references"). In re Sang Su Lee, at 277 F.3d at 1342.

In his rejection, the Examiner has failed to produce any suggestion of how the teaching of a colorless ink containing a light scattering agent could be suggested from Mashino or Taniguchi, especially when neither of these references teaches or suggests this limitation. As a result the combination of Mashino and Taniguchi would fail to motivate a person having ordinary skill in the art to produce the invention as is embodied in claim 1. Accordingly, a *prima facie* case of obviousness has not been made over Mashino and Taniguchi.

A.3 *Summary*

As has been shown, the Examiner has failed to establish a *prima facie* case of obviousness over the combination of Mashino and Taniguchi. Mashino and Taniguchi fail to teach or suggest all the claimed elements in claim 1, especially "colorless ink containing light scattering agent." Appellant therefore respectfully submits that the combination of elements as set forth in independent claim 1 of Group I is not obvious by the combination of Mashino and Taniguchi, for the reasons explained above.

Accordingly, reversal of the Examiner's rejection based on the above arguments is respectfully requested.

B. *Group II, Claim 2*

The combination of Mashino and Taniguchi fails to suggest all of the

elements set forth in claim 2 to properly support the rejection of Group II under 35 U.S.C. § 103.

Mashino and Taniguchi have been discussed above, and the general discussion thereof is incorporated here, but is not being repeated here so as to avoid repetition. Also, claim 2 depends upon claim 1 (Group I), and all of the distinctions of the invention over Group I are equally applicable to Group II.

Claim 2 further recites two lamps. Although Mashino in FIG. 13 shows two fluorescent tubes 36, the Examiner fails to show how this teaching addresses the failures of Mashino and Taniguchi in suggesting the invention as is embodied in claim 1. As a result, Mashino and Taniguchi are insufficient to allege *prima facie* obviousness over claim 2 of Group II.

Accordingly, reversal of the Examiner's rejection based on the above arguments is respectfully requested.

C. Group III, Claim 5

The combination of Mashino and Taniguchi fails to suggest all of the elements set forth in claim 5 to properly support the rejection of Group III under 35 U.S.C. § 103.

Mashino and Taniguchi have been discussed above, and the general discussion thereof is incorporated here, but is not being repeated here so as to avoid repetition. Also, claim 5 depends upon claim 1 (Group I), and all of the

distinctions of the invention over Group I are equally applicable to Group III.

Claim 5 contains the additional distinction that the light guide plate contains a plurality of patterns. This embodiment can be analogized to the "pattern of a plurality of light diffusion dots printed . . . on the underside of the light guide 37" discussed at Mashino column 4, lines 34-36 and shown in FIG 1A of Mashino. This teaching is fundamentally different from the "printing portion made of colorless ink containing a light scattering agent" of claim 1 of the invention. Further, Taniguchi pertains to a "random dot disposition pattern" on the light guide plate. As a result, the invention as embodied in claim 5 of group III is patentable for these additional reasons as well. Thus, *prima facie* obviousness has not been shown over Group III.

Accordingly, reversal of the Examiner's rejection based on the above arguments is respectfully requested.

D. Group IV, Claim 6

The combination of Mashino and Taniguchi fails to suggest all of the elements set forth in claim 6 (and its base claims 5/1) to properly support the rejection of Group IV under 35 U.S.C. § 103.

Mashino and Taniguchi have been discussed above, and the general discussion thereof is incorporated here, but is not being repeated here so as to avoid repetition. Also, claim 6 depends upon claim 5 (Group III), and all of the distinctions of the invention over Group III are equally applicable to Group IV.

Claim 9 contains the additional distinction that the patterns are dots. Although this embodiment may be inferred from Fig 1B of Mashino, this dot pattern fails to address the inability of Mashino and Taniguchi to suggest a claimed embodiment of the invention. Thus, *prima facie* obviousness has not been shown over Group IV.

Accordingly, reversal of the Examiner's rejection based on the above arguments is respectfully requested.

E. Group V, Claim 9

The combination of Mashino and Taniguchi fails to suggest all of the elements set forth in claim 9 (and its base claim 1) to properly support the rejection of Group V under 35 U.S.C. § 103.

Mashino and Taniguchi have been discussed above, and the general discussion thereof is incorporated here, but is not being repeated here so as to avoid repetition. Also, claim 9 depends upon claim 1 (Group I), and all of the distinctions of the invention over Group I are equally applicable to Group V.

Claim 9 contains the additional distinction that "light reflected from a bottom surface of the device causes constructive interference with light emitting from the lamp, whereby a bright line is prevented."

Mashino at column 2, line 20 mentions a "bright line" as being a disadvantage. Taniguchi at columns 11-15 has a detailed discussion of the geometry and arrangement of dots (which are not a light scattering agent

diffused in an ink) to avoid various interference phenomena.

However, neither Mashino nor Taniguchi disclose or suggest the elimination of a bright line through constructive interference. Therefore, the constructive interference embodied in Group V represents an additional element that neither Mashino nor Taniguchi suggests. Thus, *prima facie* obviousness has not been shown over Group V.

Accordingly, reversal of the Examiner's rejection based on the above arguments is respectfully requested.

F. Group VI, Claim 3

The combination of Mashino and Taniguchi fails to suggest all of the elements set forth in claim 3 of Group VI to properly support a rejection under 35 U.S.C. § 103.

Claim 3 pertains to a liquid crystal display device that includes a liquid crystal layer between two substrates and a back light device. The back light device of claim 3 includes all the limitations of the back light device of claim 1 of Group I. Thus all the distinctions demonstrating patentability of Group I over Mashino and Taniguchi *supra* are equally applicable for claim 3 of Group VI. For brevity, the distinctions set forth in Section A of this paper are incorporated but not repeated here.

Therefore, Mashino and Taniguchi fail to teach or suggest all the claimed elements of the liquid crystal display of claim 3, especially "colorless ink

containing light scattering agent.” Appellant therefore respectfully submits that the combination of elements as set forth in independent claim 3 of Group V is not obvious by the combination of Mashino and Taniguchi, for the reasons explained above. Thus *prima facie* obviousness has not been demonstrated over Mashino and Taniguchi.

Accordingly, reversal of the Examiner's rejection based on the above arguments is respectfully requested.

G. Group VII, Claim 4

The combination of Mashino and Taniguchi fails to suggest all of the elements set forth in claim 4 of Group VII to properly support the rejection of Group II under 35 U.S.C. § 103.

Mashino and Taniguchi have been discussed above, and the general discussion thereof is incorporated here, but is not being repeated here so as to avoid repetition. Also, claim 4 depends upon claim 3 (Group VI), and all of the distinctions of the invention over Group VI are equally applicable to Group VII.

Claim 4 further recites two lamps. Although Mashino in FIG. 13 shows two fluorescent tubes 36, the Examiner fails to show how this teaching addresses the failures of Mashino and Taniguchi in suggesting the invention as is embodied in claim 4. As a result, Mashino and Taniguchi are insufficient to allege *prima facie* obviousness over claim 4 of Group VII.

Accordingly, reversal of the Examiner's rejection based on the above

arguments is respectfully requested.

H. Group VIII, Claim 7

The combination of Mashino and Taniguchi fails to suggest all of the elements set forth in claim 7 to properly support the rejection of Group VIII under 35 U.S.C. § 103.

Mashino and Taniguchi have been discussed above, and the general discussion thereof is incorporated here, but is not being repeated here so as to avoid repetition. Also, claim 7 depends upon claim 3 (Group VI), and all of the distinctions of the invention over Group VI are equally applicable to Group VIII.

Claim 7 contains the additional distinction that the light guide plate contains a plurality of patterns. This embodiment can be analogized to the "pattern of a plurality of light diffusion dots printed . . . on the underside of the light guide 37" discussed at Mashino column 4, lines 34-36 and shown in FIG 1A of Mashino. This teaching is fundamentally different from the "printing portion made of colorless ink containing a light scattering agent" of claim 3 of the invention. Further, Taniguchi pertains to a "random dot disposition pattern" on the light guide plate. As a result, the invention as embodied in claim 7 of group VIII is patentable for these additional reasons as well. Thus, *prima facie* obviousness has not been shown over Group III.

Accordingly, reversal of the Examiner's rejection based on the above arguments is respectfully requested.

I. Group IX, Claim 8

The combination of Mashino and Taniguchi fails to suggest all of the elements set forth in claim 8 (and its base claims 7/3) to properly support the rejection of Group IX under 35 U.S.C. § 103.

Mashino and Taniguchi have been discussed above, and the general discussion thereof is incorporated here, but is not being repeated here so as to avoid repetition. Also, claim 8 depends upon claim 7 (Group VIII), and all of the distinctions of the invention over Group VIII are equally applicable to Group IX.

Claim 8 contains the additional distinction that the patterns are dots. Although this embodiment may be inferred from Fig 1B of Mashino, this dot pattern fails to address the inability of Mashino and Taniguchi to suggest a claimed embodiment of the invention. Thus, *prima facie* obviousness has not been shown over Group IX.

Accordingly, reversal of the Examiner's rejection based on the above arguments is respectfully requested.

J. Group X, Claim 10

The combination of Mashino and Taniguchi fails to suggest all of the elements set forth in claim 10 (and its base claim 3) to properly support the rejection of Group V under 35 U.S.C. § 103.

Mashino and Taniguchi have been discussed above, and the general discussion thereof is incorporated here, but is not being repeated here so as to

avoid repetition. Also, claim 10 depends upon claim 3 (Group VI), and all of the distinctions of the invention over Group VI are equally applicable to Group X.

Claim 10 contains the additional distinction that "light reflected from a bottom surface of the device causes constructive interference with light emitting from the lamp, whereby a bright line is prevented."

Mashino at column 2, line 20 mentions a "bright line" as being a disadvantage. Taniguchi at columns 11-15 has a detailed discussion of the geometry and arrangement of dots (which are not a light scattering agent diffused in an ink) avoid various interference phenomena.

However, neither Mashino nor Taniguchi disclose or suggest the elimination of a bright line through constructive interference. Therefore, the constructive interference embodied in Group X represents an additional element that neither Mashino nor Taniguchi suggests. Thus, *prima facie* obviousness has not been shown over Group X.

Accordingly, reversal of the Examiner's rejection based on the above arguments is respectfully requested.

K. Conclusion

Appellant has demonstrated that the Examiner has failed to successfully allege that the rejected claims are *prima facie* obvious. It is clear that the colorless ink containing a light scattering agent of the invention is fundamentally

different from the dot patterns of the prior art of Mashino and Taniguchi.

For the reasons advanced above, it is respectfully submitted that all claims in this application are allowable. Thus, favorable reconsideration and reversal of the Examiner's rejection of claims 1-10 under 35 U.S.C. § 103, by the Honorable Board of Patent Appeals and Interferences, are respectfully solicited.

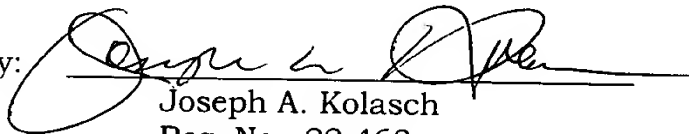
The required Appeal Brief fee in the amount of \$320.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and further replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fee required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By:



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Attachment: APPENDIX A

APPENDIX A
CLAIMS ON APPEAL

1. A back light device for use in a liquid crystal display device, comprising:
 - at least one lamp;
 - a light guide plate for guiding light emitting from the lamp;
 - a diffusing sheet for diffusing light emitting from the light guide plate;
 - at least one prism sheet located on the diffusing sheet, concentrating light;
 - a protecting sheet located on the prism sheet;
 - a reflector located under the light guide plate, reflecting light directing downward the light guide plate,wherein at least one of an edge portion of the diffusing sheet adjacent to the lamp, an edge portion of the protecting sheet adjacent to the lamp, or the reflector includes a printing portion made of colorless ink containing a light scattering agent.
2. The back light device of claim 1, wherein there are two lamps.

3. A liquid crystal display device, comprising:
- a liquid crystal panel including two substrates with a liquid crystal layer interposed therebetween;
 - a back light device including:
 - a) at least one lamp;
 - b) a light guide plate for guiding light emitting from the lamp;
 - c) a diffusing sheet for diffusing light emitting from the light guide plate;
 - d) at least one prism sheet located on the diffusing sheet, concentrating light;
 - e) a protecting sheet located on the prism sheet;
 - f) a reflector located under the light guide plate, reflecting light directing downward the light guide plate,
- wherein at least one of an edge portion of the diffusing sheet adjacent to the lamp, an edge portion of the protecting sheet adjacent to the lamp, or the reflector includes a printing portion made of colorless ink containing a light scattering agent.

4. The display device of claim 3, wherein there are two lamps.

5. The backlight device of claim 1, wherein the light guide plate has a plurality of patterns.
6. The light guide device of claim 5, wherein the patterns are dots.
7. The display device of claim 3, wherein the light guide has a plurality of patterns.
8. The display device of claim 7, wherein the patterns are dots.
9. The backlight device of claim 1, wherein light reflected from a bottom surface of the device causes constructive interference with light emitting from the lamp, whereby a bright line is prevented.
10. The display device of claim 3, wherein light reflected from a bottom of the display device causes constructive interference with light emitted from the lamp, thereby preventing a bright line.



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